

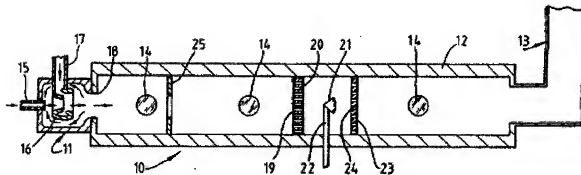
REMARKS

In the Office Action of 10 June 2009, Claims 17-34 were pending with none of the claims yet indicated allowable. Applicant respectfully request reconsideration for the reasons below.

35 U.S.C. § 103 Rejections

Claims 17-34 were rejected under 35 U.S.C. § 103 as obvious over U.S. Patent No. 4,375,949 (“Salooja”) in view of U.S. Patent No. 4,029,752 (“Cahn”), and in further view of United States Patent No. 4,196,057 (“May”), United States Patent No. 5,011,516 (“Altman”), and Applicant’s admitted prior art. Reconsideration and allowance is respectfully requested for the reasons below.

All claims are rejected, at least in part, based on Salooja. It is important to note that, although Salooja discloses a combustion system, Salooja's system is structurally and functionally divergent from methods and systems of Applicant's inventions. Salooja's Figure 1 is provided below for the Office's convenience:



Salooja's disclosure is in reference to small combustion systems having a diameter of about 61 cms and a length of about 127 cms (col. 9, lines 54-57). Salooja experimented with dimensions ranging from 127 to about 190 cms in length and from 12 to 61 cms in diameter. Salooja found that, within such small systems, variances in diameter of a few cms can produce **significant differences** in output results (col. 9, line 66 – col. 10, line 26).

Salooja states that “what has now been discovered is that a far greater reduction in carbon-forming tendency can be achieved by careful design of the combustion chamber” (col. 9, lines 22-25) and that “with a *suitably designed combustion chamber*, in conjunction with a

suitable burner, a clean, highly reducing atmosphere can be generated....” (col. 9, lines 25-28; emphasis added). In short, Salooja is using combustion chamber *design* to generate reducing atmospheres.

Importantly, Salooja’s systems are also designed to operate at very low fuel feed rates, e.g., of about 9 to about 11 liters per hour (col. 9, line 66 – col. 10, line 26).

By way of contrast, the current advancements are made in light of very large combustions systems, e.g., power generations plants (as disclosed in the specification). Power generation plants, for example, are magnitudes of order larger than Salooja’s combustion systems in both length and width, and operate with completely different fuel feed rates, volumes and fluid dynamics. For example, power plants commonly burn coal at a rate of 250 tons per hour (approximately 707,921 liters per hour for rough comparison to Salooja’s system).

In further contrast to Salooja’s combustion systems, where small combustion chambers are easy to replace or produce, large combustion systems are expensive, designed for long-term use, and are not readily replaced or modified. As such, one having ordinary skill in the art would not look to Salooja’s small chambers for guidance to larger problems nor would one expect that modifications to a small chamber such as Salooja’s would translate to larger combustion systems with any expectation of success.

Nonetheless, Applicant resubmits its previous argument that Salooja teaches away from the claimed methods’ *decreasing the acid dewpoint temperature of the flue gas such that it is lower than the flue-gas temperature in the stack*. As noted Salooja discloses that:

When the fuel contains sulfur, operation with no, or very little, excess air reduces the formation of SO₃, most of the sulfur appearing in the flue gases as SO₂ ***with a correspondingly advantageous increase in the acid dew point temperature and potential improvements for additional heat recovery***” (col. 3, lines 26-31; emphasis added).

Thus, Salooja discloses that it is beneficial to *increase* the acid dew point temperature for additional heat recovery.

In response to Salooja’s clear teaching away, the Office states that it interprets Salooja’s “passage to say that an increase in the levels of SO₂ results in a higher dew point temperature than [a] similar operation with lower levels of SO₂”. Applicant respectfully notes that it is unclear as to what “similar operation” the Office is considering or how such a similar operation

would achieve lower levels of SO_2 . For at least this reason, reconsideration and clarification is requested.

It additional response to Salooja's teaching away, the Office states that "if Applicant's interpretation of the Salooja reference was correct, there would be substantial sulphuric acid corrosion due to condensing of the SO_3 ". Applicant notes however that Salooja's combustion systems are not consuming fuel in the same amount as systems for which the instantly claimed inventions were designed. As noted, Salooja is feeding fuel at about 9 to about 11 liters per hour. It would take Salooja's small system approximately 7.3 years of continuous operation to consume the same amount of fuel as a typical power plant does in one hour (707,912 liters at 11 liters per hour = 64355 hours = 2,681 days = 7.3 years).

At Salooja's small fuel consumption rates, it makes sense that Salooja means what it says, and considers additional heat recovery to be more important than small amounts of corrosion caused by SO_3 over long periods of time. Additionally, if corrosion caused a problem in Salooja's system, small exhaust pipes are inexpensive and designed to be easily replaceable, think mufflers for example. For at least the reason that Salooja teaches away from the claimed invention, Applicant requests reconsideration.

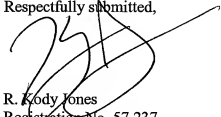
As noted previously, the other references are unable to overcome the shortcomings in the Office's primary reference. Accordingly, allowance of all claims herein is respectfully requested.

Conclusion

Applicant notes that because Applicant has addressed certain concerns of the Office does not mean that Applicant concedes other comments of the Office. Furthermore, in the interest of clarity and brevity, the fact that Applicant has made arguments for the patentability of some claims does not necessarily suggest that there are not additional supportive grounds for the patentability of those or other claims.

However, if any issue remains unresolved, Applicants' representative would welcome the opportunity for a telephone interview to expedite allowance and issue.

Respectfully submitted,

A large, stylized handwritten signature in black ink, appearing to read 'R. Kody Jones', is written over the typed name and registration information.

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